



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,540	12/15/2000	Jae-Hoon Lee	SAM-134	9736

7590 12/30/2003

MILLS & ONELLO, LLP
ELEVEN BEACON STREET
SUITE 605
BOSTON, MA 02108

EXAMINER

KANG, DONGHEE

ART UNIT	PAPER NUMBER
----------	--------------

2811

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/737,540

Applicant(s)

LEE ET AL.

Examiner

Donghee Kang

Art Unit

2811

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 10-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Acknowledgment

1. Applicant's Amendment and Response to Paper No.13 have been entered and made of Record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishibashi et al. (US 6,150,690).

Re claim 1, Ishibashi et al. teach a wiring of a semiconductor device comprising (Fig.36):

A first conductive layer (6) formed on a semiconductor substrate; a first insulating layer (10) formed on said first conductive layer, planarized by polishing (Col.10, lines 1-4); a second insulating layer (12) formed immediately over said first insulating layer and contacting said first insulation layer; a second conductive layer (11b & 18-19) contacting said first conductive layer through a via hole formed in said first and second insulation layers; and a third conductive layer (14 & 15) formed in a groove formed in said second

insulation layer, wherein said groove has a depth less than a thickness of said second insulation layer.

Re claim 2, Ishibashi et al. teach said first and second insulation layers are formed from a same insulation material (Col.10, lines 1-17).

Re claim 3, Ishibashi et al. teach said second conductive layer comprising a plug filling said via hole.

Re claim 4, Ishibashi et al. teach said first conductive layer is an impurity doped region on said semiconductor substrate (Col.9, lines 56-61).

Re claim 5, Ishibashi et al. teach a wiring of a semiconductor device further comprising:

A third insulation layer (16) formed on said second insulation layer, having a second via hole therein; and a fourth conductive layer (18 & 19) formed on said third insulation layer, contacting said third conductive layer through said second via hole.

Re claim 6, Ishibashi et al. teach said fourth conductive layer is a bit line formed from a conductive material selected from a group consisting of tungsten.

Re claim 7, Ishibashi et al. teach a wiring of a semiconductor device comprising:

A first conductive layer formed on a semiconductor substrate; a first insulation layer formed on said first conductive layer, planarized by a polishing; a second insulation layer formed immediately over said first insulation layer and contacting said first insulation layer and having a groove formed therein; and a second conductive layer formed in said groove, the second conductive layer having a thickness thinner than a thickness of said second insulation layer.

Re claim 8, Ishibashi et al. teach said first and second insulation layers are formed from a same insulation material.


Re claim 9, Ishibashi et al. teach said second conductive layer is formed from a metal selected from a group consisting of tungsten.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on 703-308-1690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Donghee Kang
Examiner
Art Unit 2811

dhk